



D'Agostaro/WDC 142785

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February 11, 1983

W66302.00

Mr. Russell Bartley, Engineer
Superfund Operations
U.S. Environmental Protection Agency - Region IV
1201 Elm Street
Dallas, Texas 75270

Dear Russ:

Subject: MOTCO Hazardous Waste Site - Feasibility Study
EPA 06 - 6MO.0

We are please to submit the draft work plan for performing the Feasibility Study for the MOTCO site. This work plan establishes a period of performance of just over five months, with the draft final report due 8 July, 1983. The total project budget is \$186,959.

As you may recall, the period of performance stated in the Work Assignment is 4.5 months. However, in preparing the enclosed schedule and critical path, we feel at least 23 weeks will be needed. Even so, this schedule is relatively very tight, due to review, comment, and revision requirements, potential public involvement, and laboratory turnaround time in the likely event additional studies are conducted. We are particularly interested in your review and comments on this schedule.

Mr. Russell Bartley
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February 11, 1983

Please feel free to call as you review the work plan. I will contact you Tuesday, February 15 at the latest to confirm or cancel my trip to your offices on Wednesday, February 16 for review of the enclosed work plan.

Sincerely,



Gregory A. Mooney, P.E.
Site Project Manager

cr/015/SRG

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DRAFT WORK PLAN
FEASIBILITY STUDY
MOTCO SITE, LAMARQUE, TEXAS

EPA 06-6M02.0

W66302.00

Submitted
February 11, 1983
by
CH2M HILL

EXECUTIVE SUMMARY

This work plan was prepared and submitted as a requirement of the REM/FIT Zone II contract for remedial planning of uncontrolled hazardous waste sites. Primary objectives of the Feasibility Study described in this work plan are to identify and evaluate alternative source control remedial response actions, recommend the most cost-effective alternative(s), and prepare a conceptual design of the alternative selected by EPA for the MOTCO Site in LaMarque, Texas.

This Feasibility Work plan establishes a scope of services to be performed with an associated budget of about \$187,000, and a performance schedule of just over five months.

MOTCO is the highest priority uncontrolled hazardous waste site, based upon hazard ranking, in Texas, and is currently ranked 28 on the Proposed National Priority List of 418 sites. Previously, initial and secondary remedial investigations were conducted to provide site characterization data. Currently, work assignments have been made for a Remedial Action Master Plan (RAMP) and this Feasibility Study. An Immediate Remedial Measure (IRM) has also been requested to remove and dispose of waste material contained in nine onsite, above-ground tanks, which are in various states of disrepair. IRM and RAMP activities will likely be conducted concurrently.

INTRODUCTION

This work plan was prepared to define the scope of activities anticipated to accomplish Work Assignment (WA) 06-6M02.0, Feasibility Study for the MOTCO Site in LaMarque, Texas. Requirements of the WA, Model Scope of Work (attached to WA), and the CH2M HILL REM/FIT Management Plan have been incorporated along with results of site-specific discussions with the State and EPA.

WA 06-6M02.00 includes an estimated Level of Effort (3600 manhours), and a period of performance of 4.5 months.

OBJECTIVE

Primary objectives of this Feasibility Study (FS) are to recommend the most cost-effective source control remedial action(s), and to prepare a conceptual design of the remedial action alternative selected by EPA. All tasks and subtasks are directed toward accomplishment of these primary objectives.

BACKGROUND

The MOTCO Site, previously known as Petro Processors Site No. 1 and as the Texas City "Y", is located adjacent to the intersection of Interstate Highway 45 and State Highways 3, 6, and 146 near LaMarque, Texas. Numerous individual haulers have used the site. Wastes received include resins, tars, soot, styrene, polyethylene, waste oil, heavy metal salts and sludges, pitch, heavy oils, organic hydrocarbons, and vinyl chloride wastes. Wastes are located in nine tanks and seven pits at the site. Two of the tanks contain

PCB-contaminated materials. Also, some buried metals exist on the site.

This site has been the source of a number of surface discharges, primarily during storm events. A 311 emergency action was completed by the U. S. Corps of Engineers to improve levees, to treat and discharge some surface impounded waters, and to fence the site. As the highest priority site in Texas, MOTCO was on the Interim Priority List of 160 sites, and currently is ranked no. 28 on the Proposed National Priority List (as provided for in CERCLA) of 418 sites.

In 1981 and 1982, initial and secondary remedial investigations were conducted to characterize the site for remedial planning purposes. Although off-site migration of contaminants in groundwater was indicated, the extent and degree of the contaminant plume was not ascertained. Additional groundwater monitoring has been conducted, but the results of these efforts are not yet available. Results of remedial investigations also indicate that air quality will be adversely affected when waste materials on site or those that have migrated off site are disturbed, due to release of vapors.

Based on results of remedial investigations, waste materials in all seven pits meet the criteria of "hazardous waste" as defined by RCRA. For the seven pits, total water volume was estimated at 3.2×10^6 gallons, and total waste material volume was estimated at 11.8×10^6 gallons, although the depth of Pit 7 -- the largest pit -- was not confirmed.

Onsite tanks are in varying states of disrepair, and the nine tanks contain an estimated total volume of about 69,000 gallons. A range of analyzed heating values from 4,670 cal/g

to 10,700 cal/g was found for the various tank materials. Contaminants present include PCB, chlorinated hydrocarbons, sulfur, halides, aluminum, and iron.

Under the REM/FIT program, a RAMP (WA 01-6V02.0) and this Feasibility Study have been assigned for the MOTCO Site. In addition, an Immediate Remedial Measure (IRM) has been requested to remove and dispose of wastes in the nine onsite tanks, with anticipated demolition and removal of most or all of the tanks. These three remedial responses are anticipated to be concurrently conducted.

APPROACH

Feasibility Studies are predicated on the development of the necessary data during remedial investigations to evaluate several feasible alternative remedial measures. This allows subsequent recommendation of the most cost-effective solution(s). Generally, the need for a feasibility study is identified and addressed in the RAMP. For the MOTCO Site, however, a RAMP has not yet been prepared and will be conducted concurrently with the FS.

Due to concurrent RAMP and FS activities, a somewhat revised approach to the site must be taken. Detailed evaluation of the considerable amount of data and information generated in initial and secondary remedial investigations and prior actions at the site will be conducted as part of the FS. Results of this data evaluation will be incorporated into the RAMP.

The FS work plan and scope have been prepared assuming the IRM will be authorized and completed, and this work plan does not address remedial alternatives for the waste materials in onsite, aboveground tanks.

Based on a preliminary review of available data and information, corresponding to the results of initial and secondary remedial investigations, the extent and degree of off-site contaminant migration has not been ascertained. Although additional groundwater sampling has been conducted, these results are not yet available. Further, it is not anticipated that these pending groundwater monitoring results will provide sufficient definition of the off-site migration to allow effective evaluation of off-site remedial alternatives. Thus, the work plan and scope presented herein include evaluation of data from all prior groundwater monitoring and identification of additional data requirements for definition of off-site migration, but do not include development and evaluation of remedial measures (beyond source control) to mitigate off-site migration.

Also, based on a preliminary review of available data and information, it is likely that additional investigations will be needed to provide characterization of wastes, or that laboratory or field testing may be required, for evaluation of specific remedial technologies. However, development of the initial list of alternative remedial actions, and the initial screening of these alternatives, will be based on data and information from prior activities. Needs for additional investigations will then be defined for evaluation of the remaining (anticipated three to five) alternatives, and the work plan, scope, schedule, and budget will be revised accordingly. An initial budget has been assumed for this field work or other work in Task 4.

Since potential additional investigations have not yet been defined, requirements of the Site Health and Safety Plan and Quality Assurance (sampling, analysis, chain-of-custody, etc.) specific to investigation activities cannot be identified. Thus, these elements of the work effort are

included in Task 4 - Laboratory Studies. Budgets in Task 4 consequently are rough estimates only, to be revised upon development of plans for investigation activities. Unless investigation activities are conducted, use of subcontractors is not anticipated.

Budgets and level of effort for conceptual design (Task 6) of the remedial action alternative selected by EPA should be considered rough estimates, since the alternative evaluation and selection process is an integral part of the FS. A review of the work plan, with revision, if needed, has been included as a work element.

A community relations plan has been drafted by EPA and the State, and a separate budget pool has been established for contractor involvement in community relations. Therefore, the work plan and scope for this FS do not include a Community Relations Assessment nor a Community Relations Plan. Involvement in support of EPA implementation of community relations is included at the level of effort indicated in Task 8.

Close coordination with EPA and the State will be critical throughout the FS, particularly in the statement of purpose and description of proposed response (Task 1) and the establishment of site-specific objectives (Task 2). The need for close coordination will be heightened by the anticipated concurrent RAMP, FS, and IRM activities -- as well as by the number of required interim project decisions.

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SCOPE OF SERVICES

Descriptions of the tasks and subtasks required to complete the FS are presented on the following pages. Corresponding budgets and schedule relationships are presented subsequently.

TASK 1. DESCRIPTION OF CURRENT SITUATION AND PROPOSED RESPONSE

Subtask 1.1 Work Plan (Draft and Final)

The purpose of the work plan is to establish the scope, cost, and schedule for the work assignment. This work plan contains all elements required in the WA, the Model Scope of Work, and the REM/FIT Management Plan.

The draft work plan will be submitted to the Remedial Site Project Officer (RSPO), with prior review by CH2M HILL staff, and to other designated EPA personnel. The RSPO distributes copies to personnel other than EPA and CH2M HILL, such as State Personnel.

A meeting is budgeted for discussion and review of the work plan. The revised final work plan is submitted, within five calendar days of receipt of EPA comments. All those receiving the initial draft also receive the revised final work plan. If the plan is approved, the EPA contracting officer issues an authorization to proceed. Otherwise, review, comment, and revision continues until approval is received.

Subtask 1.2 Prepare Description of Current Situation and Proposed Response

A description of the current site situation will be prepared. Information on the site background, the nature and extent of the problem, and previous response activities from earlier remedial actions may be incorporated by reference.

A site-specific statement of purpose for the proposed remedial response will be developed, based on results from Remedial Investigations, in close conjunction with the State and EPA. This statement of purpose, in draft form, will be a deliverable for review by EPA and the State.

The draft description of the current situation and proposed response will be discussed in a project meeting, in conjunction with other activities.

Subtask 1.3 Data Evaluation

The results of Remedial Investigations and other data and information available will be evaluated. Particular emphasis will be placed on identifying additional needs for data regarding site characterization and off-site contaminant migration.

A technical memorandum will be prepared identifying data gaps and recommending a brief outline of additional investigations. Upon review and approval of the need for additional investigations, more detailed plans including estimated cost, scope, and schedule will be prepared under Task 4.

Task 2.3 Identification of Remedial Alternatives

Preliminary alternatives will be developed to incorporate remedial technologies and other considerations into comprehensive, site-specific approaches to meet the response objectives. A no-action alternative is included as a baseline, and a non-cleanup alternative should be included. These preliminary alternatives form the basis for subsequent FS activities.

The site management team will meet with EPA and the State to review the list of available potential remedial action alternatives and to narrow the list to 7-10 alternatives for further evaluation. A technical memorandum will be prepared documenting the criteria used in selection of initial alternatives.

TASK 3. INITIAL SCREENING OF ALTERNATIVES

The objectives of this task are to evaluate alternative source-control remedial actions based on cost, environmental effects, environmental protection, and implementability/feasibility (engineering assessment); and to screen alternatives to reduce the number of alternatives to three to five. The level of detail developed to perform this screening is sufficient only to identify relative or comparative, not absolute, differences between alternatives.

All efforts in Task 3 will be performed based on the results of prior remedial investigations and other available data, information, and regulatory guidance.

Subtask 3.1 Prepare Incremental Cost Estimates

Incremental order-of-magnitude capital and operation and maintenance (O&M) costs will be estimated for each initial source-control remedial alternative. An alternative whose cost far exceeds that of other alternatives will normally be eliminated, unless other alternatives do not meet the response objectives. Present worth analyses will be used to identify significant cost differences.

Subtask 3.2 Identify Environmental Effects and Degree of Environment Protection

Alternatives presenting significant adverse environmental effects will usually be excluded. Adequacy of source control to satisfy the response objectives and to contribute substantially to protection of public health and the environment are necessary for retained alternatives. Public acceptability and permitability should be assessed.

Subtask 3.3 Assess Engineering Feasibility and Implementability

In this subtask, an engineering assessment of the feasibility and implementability of the initial remedial alternatives will be made.

Alternatives will be excluded unless the response objectives are achieved within a reasonable time period, and the alternative is not extremely difficult to implement.

Subtask 3.4 Screen Initial Alternatives

In conjunction with the State and EPA, the initial source control remedial alternatives developed in Task 2 will be screened to eliminate alternatives that are not feasible or appropriate based on the results of Subtasks 3.1, 3.2, and 3.3. A draft summarizing and documenting all efforts in Task 3 will be prepared and submitted as a deliverable, and a project meeting with the State and EPA will be held to review the screening process.

Subtask 3.5 Identify Additional Studies

During the process of screening initial source-control alternatives, uncertainties and data gaps will be identified. In this task, additional studies needed to allow effective evaluation of the remaining three to five source-control alternatives will be identified. These additional studies, once approved by EPA, would be conducted under Task 4 and may consist of characterization or actual testing of remedial technologies on a bench or field scale. These studies may be required to fully evaluate the cost, constructability, applicability, or reliability of any remaining alternative. Emphasis will be placed on specific parameters of interest.

TASK 4. LABORATORY STUDIES

As stated in the Work Assignment, field work or any other type work can be performed with EPA approval to gather data necessary to effectively evaluate the remaining (screened) source-control remedial alternatives. Efforts needed will be identified in Subtasks 1.3 and 3.5, or in the RAMP. Since the scope of additional studies cannot yet be defined, budget and schedule elements in Task 4 should be considered rough estimates only.

Subtask 4.1 Revise Work Plan

Upon EPA approval to gather additional data, the FS work plan, schedule, and budget will be revised to reflect the required efforts. Gathering of additional data requires the following elements to be prepared for review and approval:

- Sampling and Analyses Plan or Testing Plan
- Site Health and Safety Plan (specific to the activities to be conducted)
- Quality Assurance Project Plan (revised to include sampling and analysis, chain-of-custody, etc.)
- Contract Laboratory Requirements
- Subcontracting Plan (if needed)

Subtask 4.2 Conduct Additional Studies

Upon approval of the revised work plans incorporating elements listed in Subtask 4.1, and receipt of authorization to proceed from EPA, additional studies would be conducted.

Subtask 4.3 Prepare Summary of Study Results

A draft report, appropriate to the extent and scope of additional studies, will be prepared summarizing all efforts in Task 4. This report would be submitted to EPA for review, and the study results would be incorporated in evaluation of the prescreened remedial alternatives.

TASK 5 - EVALUATION OF THE ALTERNATIVES

Objectives of this Task are to develop more details on the remedial alternatives resulting from the initial screening (Task 3), to evaluate the alternatives, and to recommend the most cost-effective alternative(s) to the State and EPA.

Subtask 5.1 Develop Remaining Alternatives

A detailed development of the prescreened remedial alternatives from Task 3 will be accomplished considering the following items if applicable:

1. Description and technical assessment of appropriate treatment and disposal technologies.
2. Literature searches may be conducted to assist in assessment of applicable technologies.
3. Basic component diagrams for each alternative.
4. Major equipment and utility requirements.
5. Conceptual site layout drawings.
6. Preliminary implementation schedule.
7. Special engineering considerations required to implement the alternative, e.g., pilot treatment facility, additional studies needed to proceed with final remedial design.
8. Environmental impacts and proposed mitigation methods for adverse effects.
9. Operation, maintenance, and monitoring requirements of the completed remedy.
10. Off-site disposal needs and transportation plans.

11. Temporary storage requirements.
12. Safety requirements for remedial implementation (including both onsite and off-site health and safety considerations).
13. A description of how the alternative could be phased into individual operable units. The description should include a discussion of how various operable units of the total remedy could be implemented individually or in groups, resulting in a significant improvement to the environment or savings in costs.
14. A description of how the alternative could be segmented into areas to allow implementation of differing phases of the alternative.
15. A review of any off-site facilities provided by the state to ensure compliance with applicable RCRA requirements, both current and proposed.

Subtask 5.2 Assess Environmental Impact

An environmental assessment for each prescreened alternative will be conducted. The assessment will include, as a minimum, the environmental effects of each alternative; necessary measures to mitigate adverse environmental effects; physical or legal constraints; and compliance with CERCLA, RCRA, and other regulatory requirements.

Subtask 5.3 Prepare Cost Estimates

A monetary and non-monetary cost analysis will be conducted on each prescreened alternative. Present worth analysis for

the monetary cost analyses will be used following EPA guidance.

Cost estimating procedures will be standardized as much as possible to overcome inequities in the evaluation process.

The costs of health and safety requirements should be included in the cost evaluation. These estimates will be order-of-magnitude, defined by the American Association of Cost Engineers as follows:

Order of Magnitude Estimate: An approximate estimate made without detailed engineering data. Examples include: an estimate from cost-capacity curves, an estimate using scale-up or scale-down factors, and an approximate ratio estimate. It is normally expected that an estimate of this type would be accurate within +50 percent and -30 percent.

Subtask 5.4 Evaluate Alternatives

Each remedial alternative will be evaluated according to the following EPA criteria.

1. Reliability. Alternatives that minimize or eliminate the potential for release of wastes into the environment will be considered more reliable than other alternatives. For example, recycling of waste and off-site incineration would be considered more reliable than land disposal. Institutional concerns such as management requirements can also be considered as reliability factors.
2. Implementability. The requirements of implementing the alternatives will be considered, including

phasing alternatives into operable units and segmenting alternatives into project areas on the site. Required time to implement the alternative, the degree of difficulty or complexity, and constructability will be considered.

Additional factors to be considered include public acceptability and institutional or legal constraints.

During this task, assessments are compiled, alternatives are ranked within each assessment category, and overall rankings are prepared. Rankings will be based on engineering judgment and will reflect the EPA, State, local, and public input received. Review meetings will be held to obtain input for the comparative rankings. A decision matrix will be used to evaluate alternatives.

The lowest cost alternative that appears technically feasible, reliable, implementable, and adequately protective (or mitigates damage to) of public health and the environment will be recommended as the cost-effective alternative.

Subtask 5.5 Prepare (Draft and Final) Evaluation Report

A preliminary report of the results of this Task and Tasks 1-4 summarizing data developed during evaluation of alternatives, documenting the alternative remedial actions assessment process, and recommending one alternative or combination of alternatives.

Five days after the draft report is submitted to EPA for review, a meeting will be held to discuss EPA and State comments and to provide additional input needed for acceptance of the recommended actions.

A final report will be submitted following receipt of written review comments and EPA approval of the recommended remedial actions. Recent policy from EPA Headquarters requires a three-week period for public comment on the recommended remedy prior to EPA selection of the remedial actions to be implemented.

TASK 6. CONCEPTUAL DESIGN

A conceptual design is the mechanism by which the selected remedial action alternatives are defined for the design and implementation phases. The next lead agency, generally the State or COE, should be included in reviews of work plans and work products during the conceptual design phase.

Since the selection process is an integral part of FS, the scope of conceptual design activities is not yet known. Items described below address potential conceptual design requirements, additional data that may be needed to prepare a design consistent with remedial objectives, and sufficient conceptual development to prepare a budget-level cost estimate. Activities described are to be included if appropriate, but do not necessarily reflect the level of effort or budget required for this site. Thus, revision of the work plan to reflect EPA selection of specific remedial action(s) is included as a work element.

Subtask 6.1 Revise Work Plan

Based on EPA selection of remedial action(s) to be implemented, results of efforts in earlier tasks, and input from the lead agency for design and implementation, the work plan will be revised and submitted for approval. Upon approval and receipt of authorization, specific activities identified in the approved work plan would be conducted.

Subtask 6.2 Prepare Conceptual Design Documents

The following conceptual design documents may be developed as applicable for the selected remedial actions:

- Conceptual plan view drawings of the overall site, showing general locations for project actions and facilities.
- Conceptual layouts for the individual facilities, other items to be installed, or actions to implemented.
- Conceptual design criteria and rationale.
- Description of types of equipment required, including approximate capacity and size and material types.
- Block process flow sheets, including chemical consumption estimates and a description of the process.
- Operational description of process units or other facilities.
- Approximate piping sizes, capacities, and rationale.
- Estimate of quantities of material or equipment required and rationale.
- Description of structural concepts for facilities.

- Description of construction techniques and O&M requirements.
- Construction material requirements and rationale.
- Utility requirements and rationale.
- Evaluation of potential construction problems, the associated risks, and the proposed solutions.
- Outline of technical specifications and protocols (e.g., construction, drum removal, drum consolidation).

Subtask 6.3 Develop Supporting Documents

Develop, as applicable and approved:

- Right-of-way requirements.
- Description of technical requirements for environmental mitigation measures (e.g., recommendation for revegetation).
- Additional engineering data required to proceed with design.
- Construction permit requirements anticipated.
- Temporary hazardous material storage and disposal requirements and rationale.
- Off-site disposal procedures, including transportation and vehicle constraints, and final disposal and treatment facility options.

- Description of construction health and safety requirements.
- Closure and long-term monitoring requirements and rationale.
- Performance Standards to define what levels of cleanup will be required to complete the remedial action.
- Guidance for continued community relations programs.
- Implementation schedule showing estimated time periods for design, construction, operation, and long-term monitoring of the remedial actions.
- Refinement of environmental permit and institutional requirements.

Subtask 6.4 Prepare Cost Estimates

Budget-level construction and O&M costs would be estimated, in accordance with the guidance of the American Association of Cost Engineers.

Budget Estimate: Budget in this case applies to the owner's budget and not the budget as a project-control document. A budget estimate is prepared with the use of flowsheets, layouts and equipment details. It is normally expected that an estimate of this type would be accurate with +30 percent to -15 percent.

The budget estimate is based on:

- Quantities (from conceptual design takeoff);
- Unit cost development (based on area labor rates, vendor quotes, standard cost estimating references, and CH2M HILL's historical cost data bank);
- Allowances for items not determined in detail (e.g., pipe fittings); and
- EPA cost guidance.

Subtask 6.5 Prepare and Submit Conceptual Design Package
(Draft and Final)

A draft conceptual design package will be prepared and submitted for review and approval. Included will be the results of appropriate activities in Subtasks 6.1 through 6.4. Within 10 days of receipt of written comments from EPA, the State, and other involved agencies, the revised final conceptual design package will be submitted.

TASK 7. FINAL REPORT

This task is the culmination of the preceding six tasks. The final report will summarize results from earlier tasks, and will include appended supplemental information. Where possible, such as the conceptual design package, major activities and/or deliverables will be briefly summarized and incorporated by reference.

A draft report will be submitted for EPA review and comment. The final report will reflect comments and input received from reviewers as appropriate.

TASK 8. COORDINATION AND COMMUNITY RELATIONS

Activities in support of the community relations program may be required at regular intervals in the FS process. Since development of the Community Relations Assessment and Plan are not part of this scope, activities in this task include support of the community relations program developed separately and implemented by EPA and the State.

Examples of support activities include:

- Preparation of documentation such as diagrams, plans, charts, etc., to support community relations and to assist in obtaining permits or other institutional requirements.
- Attend public meetings and project review meetings.
- Make presentations and briefings as needed.

Generally, normal progress and project review meetings are budgeted in applicable tasks. The budget associated with this task is an initial estimate only, not based on a specific request for activities.

TASK 9. ADDITIONAL REQUIREMENTS

Subtask 9.1 Project Management

The site project manager is responsible for budget and schedule control, and both technical and financial reporting. Activities to be performed in this subtask include:

- Selecting, coordinating, and scheduling staff for the work assignment;
- Controlling budgets and schedules;
- Assisting in preparation of monthly regional work plans;
- Monitoring subcontractors;
- Assisting in achieving small business, economically disadvantaged business and labor surplus area subcontracting goals;
- Submitting technical, management, and financial information;
- Preparing monthly technical and financial reports, activity completion reports, award fee performance event reports, task completion memos;
- Managing the assigned work; and
- Project closeout, including the Work Assignment Completion Report.

Cost control procedures will include designated unique project task numbers to track task costs versus budget, in comparison with task element completion status. Overall completion status will be developed from individual task element budget comparisons.

Subtask 9.2 Quality Assurance

Quality assurance entails a number of specific activities and procedures. These include:

1. Document control. All documents (except correspondence) received or sent be assigned a control number, and this number will be physically attached to the document. Since extensive files were generated in remedial investigations, a somewhat revised numbering system will be developed to utilize the existing document numbering system, if possible.

All documents will be logged in and out, with the log book maintained by the site project manager. All persons contributing documents will receive a memo summarizing the sources, documents provided, date documents were received, and a brief synopsis of each document.

All outgoing documents will show the EPA designation number (06-6M02.0) on the first page.

Project files are planned to be audited generally quarterly by the REM/FIT Quality Assurance Manager to ensure that files are maintained in accordance with document control procedures.

2. Review of Project Deliverables. All project deliverables must be reviewed by senior technical staff in CH2M HILL, including the work plan. Reviewers from with specific areas of expertise will evaluate and, where necessary, request revision of the technical content of project deliverables. Reviewers are generally assigned by

the Quality Assurance Manager, and the efforts to conduct reviews are included in this task.

Specific discipline specialties anticipated in this project are:

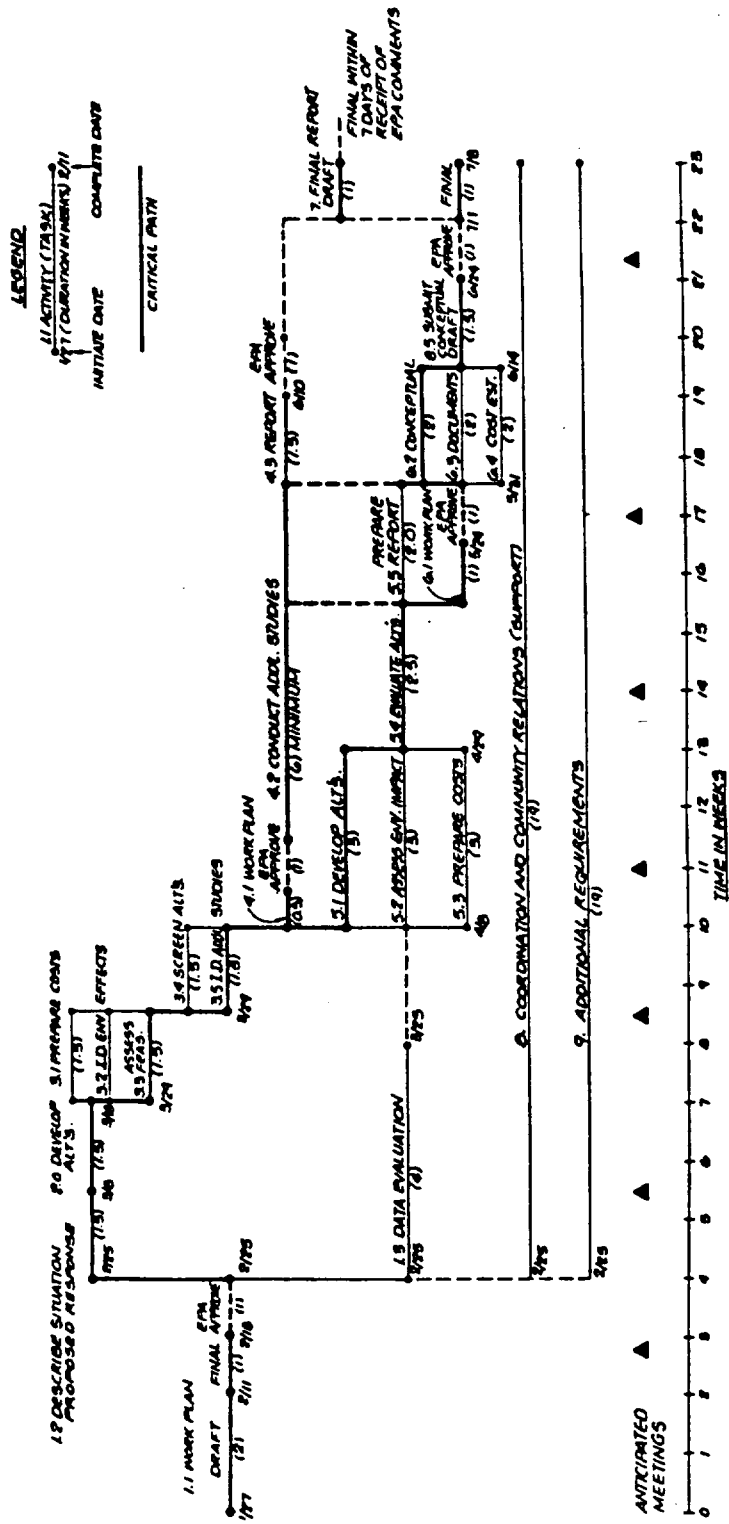
- Hazardous Waste Engineering
- Geotechnical Engineering
- Geohydrology
- Air Quality
- Chemical Processes
- Cost Estimating
- Community Relations, Environmental Assessment

Pending testing, or other field activities, the following additional disciplines may also be involved:

- Health and Safety
- Laboratory Services
- Data Management

SCHEDULE

The proposed project schedule, list of project deliverables, anticipated meeting schedule and assumptions are given on the following pages. In preparing the CPM schedules the required time of completion is 23 weeks, or just over 5 months. Although this schedule slightly exceeds the period of performance stated in the WA, it is still relatively very tight. This is particularly true considering potential field time, analytical laboratory turnaround, probable public participation, and review/comment/revision cycles on project deliverables and updated work plans.



SCHEDULE AND CPM - MOTCO SITE FEASIBILITY STUDY - La MARQUE, TEXAS

CH2M HILL W66302.00 EPA 06-6M020

LIST OF PROJECT DELIVERABLES^(a)

	<u>Anticipated Issue Date</u>	<u>Schedule Week</u>
Draft Work Plan	2/11/83	2
Final Work Plan	2/18/83	3
(or within 5 days of receipt of EPA comments)		
Description of Proposed Response and Site-Specific Objectives	3/11/83	6
List of Remedial Alternatives Considered and Initial Screening Section	4/1/83	9
Request & Background Studies to be Undertaken	4/8/83	10
Results of Studies	6/10/83	19
Draft of Evaluation of Alternatives	5/24/83	16
Draft Conceptual Design Package	6/24/83	20
Final Conceptual Design Package	7/1/83	21
(or within 7 days of receipt of EPA comments)		
Draft Final Report	7/8/83	23
Final Report (within 7 days of receipt of EPA comments)		

(a) Not including monthly reports

ANTICIPATED MEETING SCHEDULE^(a)

<u>Approx. Date</u>	<u>Purpose</u>
2/16/83	Resolution of Work Plan (if necessary)
3/9/83	Review Statement of Purpose of Proposed Response and Discuss Initial Alternatives
3/29/83	Review Cost Estimate, Environmental Effects, and Feasibility Assessment Data for Initial Alternatives, and Discuss Screening Criteria
4/13/83	Review Request for Additional Studies, Resolve Work Plan, and Discuss Methods to Expedite Additional Studies
5/4/83	Review Cost, Environmental Assessment, and Alternative Development Data; and Discuss Evaluation Criteria
5/26/83	Review Alternative Evaluation; Resolve Conceptual Design Work Plan (if necessary)
6/29/83	Review Draft of Conceptual Design Package; Resolve Comments and Revisions Needed

^(a) Does not include CH2M HILL internal project meetings.

ASSUMPTIONS

1. EPA will issue notification to proceed (work plan approval) within 14 calendar days of receipt of the draft work plan.
2. EPA and the State will active participate in the project, performing timely review, comment, and approval.
3. The IRM and RAMP will be conducted concurrently as described in the Introduction. The IRM will be authorized and completed. Thus, the work scope does not address waste material in above-ground tanks.
4. Data evaluation will include all prior groundwater monitoring data; but the scope of work for initial screening and alternative evaluation addresses only source-control actions.

BUDGET

On the following page, the overall project budget is presented by task, with separate total labor and expense estimates by task. Subsequent pages present individual task budgets by labor category and expense items. Assumptions listed previously also apply to the budget estimates.

An Optional Form 60 is attached summarizing the overall project budget.

jh/GAM/011

W66302.00 MOTCO FEASIBILITY STUDY -- EPA 06.6M02.0

LABOR AND OTHER DIRECT COST SUMMARY BY TASK

Task No.	Description	Hours	Labor Costs ^(a) (\$)	Expenses (\$)	Total Cost (\$)
1	Description of Current Situation and Proposed Response	286	\$ 11,750.96	\$ 3,120.00	\$ 14,870.96
2	Development of Alternatives	272	\$ 10,547.76	\$ 3,270.00	\$ 13,817.76
3	Initial Screening of Alternatives	434	\$ 14,567.74	\$ 2,480.00	\$ 17,047.74
4	Laboratory Studies	334	\$ 11,044.81	\$ 25,000.00 ^b	\$ 36,044.81
5	Evaluation of the Alternatives	425	\$ 14,570.29	\$ 3,230.00	\$ 17,800.29
6	Conceptual Design	749	\$ 26,258.07	\$ 4,070.00	\$ 30,328.07
7	Final Report	288	\$ 10,116.97	\$ 1,400.00	\$ 11,516.97
8	Coordination and Community Relations	292	\$ 12,249.89	\$ 4,010.00	\$ 16,259.89
9	Additional Requirements	<u>228</u>	<u>\$ 10,655.64</u>	<u>\$ 3,020.00</u>	<u>\$ 13,675.64</u>
	TOTAL	3,308	\$121,762.13	\$49,600.00	\$171,362.13
	Unadjusted Fee				<u>15,596.21</u>
	CONTRACT TOTAL				\$186,958.34

^aIncludes direct labor, direct overhead (38%), and G&A overhead (117%)

^bIncludes \$22,000.00 subcontracting (estimate).

CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 1. Description of Current Situation and Proposed Response

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	92	23.31	\$ 2,144.52
P3	36	16.74	602.64
P2	32	13.87	443.84
P1	80	12.31	984.80
T2	22	11.07	243.54
T1	--	8.28	--
0	<u>24</u>	7.87	<u>188.88</u>
	286		

Total Direct Labor	\$ 4,608.22
Direct Labor (Overhead (38%))	\$ 1,751.12
G & A Overhead (117%)	<u>\$ 5,391.62</u>
Total Indirect Labor Cost	\$ 7,142.74

EXPENSES

Description

Travel	\$ 2,450.00
Transportation	\$2,000.00
Subsistence	\$ 450.00
Other Direct Costs	\$ 670.00
Total Expenses	\$ 3,120.00
TASK TOTAL	\$14,870.96

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W66302.00 CH2M HILL ESTIMATED PROJECT COST EPA 06-6M02.0
MOTCO FEASIBILITY STUDY

TASK 2. Development of Alternatives

<u>Grade</u>	<u>Hours</u>	<u>LABOR COST</u>		<u>Direct Total</u>
		<u>\$/Hour</u>		
P4	56	23.31		\$ 1,305.36
P3	64	16.74		1,071.36
P2	48	13.87		665.76
P1	60	12.31		738.60
T2	--	11.07		--
T1	22	8.28		182.16
		7.87		
	<u>22</u>			<u>173.14</u>
0	272			
Total Direct Labor				
				\$ 4,136.38
Total Direct Labor (Overhead (38%))				\$ 1,571.82
Direct Labor (117%)				<u>\$ 4,839.56</u>
G & A Overhead				\$ 6,411.38
Total Indirect Labor Cost				

EXPENSES

\$ 2,950.00

<u>Description</u>		
Travel	\$2,050.00	
Transportation	\$ 900.00	\$ 320.00
Subsistence		\$ 3,270.00
Other Direct Costs		\$13,817.76
Total Expenses		
TASK TOTAL		

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 3. Initial Screening of Alternatives

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	40	23.31	\$ 932.40
P3	60	16.74	1,004.40
P2	82	13.87	1,137.34
P1	130	12.31	1,600.30
T2	16	11.07	177.12
T1	66	8.28	546.48
0	<u>40</u>	7.87	<u>314.80</u>
	434		
Total Direct Labor			\$ 5,712.84
Direct Labor (Overhead (38%))			\$ 2,170.88
G & A Overhead (117%)			<u>\$ 6,684.02</u>
Total Indirect Labor Cost			\$ 8,854.90

EXPENSES

Description

Travel		\$ 2,080.00
Transportation	\$1,600.00	
Subsistence	\$ 480.00	
Other Direct Costs		\$ 400.00
Total Expenses		\$ 2,480.00
TASK TOTAL		\$17,047.74

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 4. Laboratory Studies (Rough Estimate)

<u>LABOR COST</u>			
<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	32	23.31	\$ 745.92
P3	40	16.74	669.60
P2	48	13.87	665.76
P1	110	12.31	1,354.10
T2	16	11.07	177.12
T1	64	8.28	529.92
0	<u>24</u>	7.87	<u>\$ 188.88</u>
	334		
Total Direct Labor			\$ 4,331.30
Direct Labor (Overhead (38%))			\$ 1,645.89
G & A Overhead (117%)			<u>\$ 5,067.62</u>
Total Indirect Labor Cost			\$ 6,713.51

<u>EXPENSES</u>	
<u>Description</u>	
Travel	\$ 2,400.00
Transportation	\$1,650.00
Subsistence	\$ 750.00
Other Direct Costs	\$ 600.00
Subcontracting (Estimate)	\$22,000.00
Total Expenses	\$25,000.00
TASK TOTAL	\$36,044.81

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 5. Evaluation of the Alternatives

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	40	23.31	\$ 932.40
P3	65	16.74	1,088.10
P2	80	13.87	1,109.60
P1	140	12.31	1,723.40
T2	16	11.07	177.12
T1	54	8.28	447.12
0	<u>30</u>	7.87	<u>236.10</u>

425

Total Direct Labor	\$ 5,713.84
Direct Labor (Overhead (38%))	\$ 2,171.26
G & A Overhead (117%)	<u>\$ 6,685.19</u>
Total Indirect Labor Cost	\$ 8,856.45

EXPENSES

Description

Travel		\$ 2,770.00
Transportation	\$2,320.00	
Subsistence	\$ 450.00	
Other Direct Costs		\$ 460.00
Total Expenses		\$ 3,230.00
TASK TOTAL		\$17,800.29

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 6. Conceptual Design

<u>LABOR COST</u>			
<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	80	23.31	\$ 1,864.80
P3	125	16.74	2,092.50
P2	160	13.87	2,219.20
P1	220	12.31	2,708.20
T2	24	11.07	265.68
T1	110	8.28	910.80
0	<u>30</u>	7.87	<u>236.10</u>
	749		

Total Direct Labor	\$10,297.28
Direct Labor (Overhead (38%))	\$ 3,912.97
G & A Overhead (117%)	<u>\$12,047.82</u>
Total Indirect Labor Cost	\$15,960.79

<u>EXPENSES</u>	
<u>Description</u>	
Travel	\$ 3,320.00
Transportation	\$2,600.00
Subsistence	\$ 720.00
Other Direct Costs	\$ 750.00
Total Expenses	\$ 4,070.00
TASK TOTAL	\$30,328.07

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 7. Final Report

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	32	23.31	\$ 745.92
P3	48	16.74	803.52
P2	64	13.87	887.68
P1	80	12.31	984.80
T2	10	11.07	110.70
T1	24	8.28	198.72
0	<u>30</u>	7.87	<u>236.10</u>

288

Total Direct Labor	\$ 3,967.44
Direct Labor (Overhead (38%))	\$ 1,507.63
G & A Overhead (117%)	<u>\$ 4,641.90</u>
Total Indirect Labor Cost	\$ 6,149.53

EXPENSES

Description

Travel	\$ 600.00
Transportation	\$400.00
Subsistence	\$200.00
Other Direct Costs	\$ 800.00
Total Expenses	\$ 1,400.00
TASK TOTAL	\$11,516.97

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 8. Coordination and Community Relations

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	104	23.31	\$ 2,424.24
P3	64	16.74	1,071.36
P2	--	13.87	--
P1	64	12.31	787.84
T2	12	11.07	132.84
T1	24	8.28	198.72
0	<u>24</u>	7.87	<u>188.88</u>

292

Total Direct Labor	\$ 4,803.88
Direct Labor (Overhead (38%))	\$ 1,825.47
G & A Overhead (117%)	<u>\$ 5,620.54</u>
Total Indirect Labor Cost	\$ 7,446.01

EXPENSES

Description

Travel	\$ 3,460.00
Transportation	\$2,500.00
Subsistence	\$ 960.00
Other Direct Costs	\$ 550.00
Total Expenses	\$ 4,010.00
TASK TOTAL	\$16,259.89

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CH2M HILL ESTIMATED PROJECT COST
W66302.00 MOTCO FEASIBILITY STUDY EPA 06-6M02.0

TASK 9. Additional Requirements

LABOR COST

<u>Grade</u>	<u>Hours</u>	<u>\$/Hour</u>	<u>Direct Total</u>
P4	140	23.31	\$ 3,263.40
P3	24	16.74	401.76
P2	--	13.87	--
P1	--	12.31	--
T2	--	11.07	--
T1	24	8.28	198.72
0	<u>40</u>	7.87	<u>314.80</u>

228

Total Direct Labor	\$ 4,178.68
Direct Labor (Overhead (38%))	\$ 1,587.90
G & A Overhead (117%)	<u>\$ 4,889.06</u>
Total Indirect Labor Cost	\$ 6,476.96

EXPENSES

Description

Travel	\$ 2,720.00
Transportation	\$2,200.00
Subsistence	\$ 520.00
Other Direct Costs	\$ 300.00
Total Expenses	\$ 3,020.00
TASK TOTAL	\$13,675.64

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CONTRACT PRICING PROPOSAL (RESEARCH AND DEVELOPMENT)				Office of Management and Budget Approval No. 29-RO184	
This form is for use when (i) submission of cost or pricing data (see FPR 1-3.807-3) is required and (ii) substitution for the Optional Form 59 is authorized by the contracting officer.				PAGE NO.	NO OF PAGES
NAME OF OFFEROR CH2M HILL Southeast, Inc.		SUPPLIES AND/OR SERVICES TO BE FURNISHED WA 06-6M02.0			
HOME OFFICE ADDRESS 1941 Roland Clarké Place Reston, Virginia 22091		Feasibility Study MOTCO Site LaMarque, Texas			
DIVISION(S) AND LOCATION(S) WHERE WORK IS TO BE PERFORMED Montgomery, Alabama		TOTAL AMOUNT OF PROPOSAL \$		GOV'T SOLICITATION NO. 68-01-6692	
DETAIL DESCRIPTION OF COST ELEMENTS					
1. DIRECT MATERIAL (Itemize on Exhibit A)			EST COST (\$)	TOTAL EST COST	REFERENCE
a. PURCHASED PARTS					
b. SUBCONTRACTED ITEMS					
c. OTHER—(1) RAW MATERIAL					
(2) YOUR STANDARD COMMERCIAL ITEMS					
(3) INTERDIVISIONAL TRANSFERS (At other than cost)					
TOTAL DIRECT MATERIAL					
2. MATERIAL OVERHEAD (Rate % of \$ base =)					
3. DIRECT LABOR (Specify)			ESTIMATED HOURS	RATE/HOUR	EST COST (\$)
P4			616	23.31	14,359
P3			526	16.74	8,805
P2			514	13.87	7,129
P1			884	12.31	10,882
T2			116	11.07	1,284
T1			388	8.28	3,213
TOTAL DIRECT LABOR			264	7.87	2,078
4. LABOR OVERHEAD (Specify Department or Cost Center)			O.H. RATE	X BASE =	EST COST (\$)
			0.38	47,750	18,145
TOTAL LABOR OVERHEAD					18,145
5. SPECIAL TESTING (Including field work at Government installations)				EST COST (\$)	
TOTAL SPECIAL TESTING					
6. SPECIAL EQUIPMENT (If direct charge) (Itemize on Exhibit A)					
7. TRAVEL (If direct charge) (Give details on attached Schedule)				EST COST (\$)	
a. TRANSPORTATION				17,220	
b. PER DIEM OR SUBSISTENCE				5,530	
TOTAL TRAVEL				22,750	
8. CONSULTANTS (Identify—purpose—rate)				EST COST (\$)	
Subcontractor - Field Testing				22,000	
TOTAL CONSULTANTS				22,000	
9. OTHER DIRECT COSTS (Itemize on Exhibit A)				4,850	
TOTAL DIRECT COST AND OVERHEAD				15,495	
11. GENERAL AND ADMINISTRATIVE EXPENSE (Rate % of cost element Nos.)				55,868	
12. ROYALTIES				--	
TOTAL ESTIMATED COST				171,363	
14. FEE OR PROFIT				15,596	
TOTAL ESTIMATED COST AND FEE OR PROFIT				186,959	

